



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,497	11/10/2003	Raymond J. Drago	66638-41471	7226

7590 02/04/2005

Joseph M. Rolnicki
Thompson Coburn LLP
One US Bank Plaza
St. Louis, MO 63101

EXAMINER

ESTREMSKY, SHERRY LYNN

ART UNIT	PAPER NUMBER
----------	--------------

3681

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,497

Applicant(s)

DRAGO ET AL.

Examiner

Sherry L Estremsky

Art Unit

3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 13-18, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 7, 11, 12 and 19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 8-10, 14-18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Chillson, U. S. Patent 3,540,311.

Chillson shows in figures 9-12 an epicyclic gear transmission.

Sun gear 218 has a center axis.

Ring gear 230 has a center axis that is coaxial with the sun gear center axis.

As best shown in figures 9 and 10, a plurality of planet gears 220a, 220b, and 226 have center axes that are parallel with the center axis of the sun and ring gears. The planet gears are spacially arranged around the sun gear, and at least some of the plurality of planet gears, 220a and 220b, are meshed with the sun gear 218. The planet gears 220a and 220b meshing with the sun gear 218 have peripheries that are interleaved (figure 10; column 10, lines 31-34).

(claim 1)

An input shaft 214 is connected to the sun gear 218 for rotating the sun gear (figure 9; column 10, lines 25-28) and the ring gear 230 is fixed (column 10, lines 57-62).

(claims 2 and 15)

Art Unit: 3681

The plurality of planet gears are mounted on a plurality of planet gear shafts 224 with at least two planet gears of the plurality of planet gears (220a and 226 or 220b and 226) being mounted on each planet gear shaft (column 10, lines 43-56).

(claim 3)

The gears 220a and 220b, the planet gears meshing with the sun gear 218, are the largest planet gears on the planet gear shafts 224 (figure 9).

(claims 4 and 17)

At least one of the planet gears 226 on each planet gear shaft 224 meshes with the ring gear 230.

(claim 5)

The ring gear 230 is one of a pair of fixed ring gears 230 and 242.

At least two planet gears 226 and 238 (rotatably mounted on the planet gear shaft 224 through rolling surface 228) on each planet gear shaft 224 mesh with the pair of ring gears 230 and 242.

(claims 6 and 18)

A first planet gear 220a or 220b of the at least two planet gears on each planet gear shaft meshes with only the sun gear 218, and a second planet gear 226 of the at least two planet gears on each planet gear shaft meshes with only the ring gear 230.

(claim 8)

The first planet gear 220a or 220b is larger than the second planet gear 226.

(claim 9)

The ring gear 230 is one of a pair of ring gears 230 and 242.

The second planet gear 226 of the at least two planet gears on each planet gear shaft 224 meshes with only the one ring gear 230 and a third planet gear 238 on each planet gear shaft 224

Art Unit: 3681

(rotatably mounted through rolling surface 228) meshes with only an other ring gear 242 of the pair of ring gears.

(claim 10)

The plurality of planet gears 220a and 220b are spacially arranged around and meshing with the sun gear 218, with adjacent planet gears meshing with the sun gear being axially staggered (figure 9; column 10, lines 31-34).

(claim 14)

The plurality of planet gears 220a and 220b are mounted on a plurality of planet gear shafts 224, the planet gear shafts 224 having center axes that are paralell with the sun and ring gear axis. The axially staggered adjacent planet gears meshing with the sun gear 218 are mounted on adjacent planet gear shafts (figure 10).

(claim 16)

The plurality of planet gears 220a and 220b that mesh with the sun gear 218 do not mesh with the pair of ring gears 230 and 242.

(claim 20)

3. Claims 1-5, 8, 9, 13-17, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kish, U. S. Patent 5,472,386.

Kish shows in figures 1 and 3-6 an epicyclic gear transmission 10.

Sun gear 12 has a center axis.

Ring gear 20 has a center axis that is coaxial with the sun gear center axis.

As best shown in figure 3, a plurality of planet gears 14U, 14L, and 16 have center axes that are parallel with the center axis of the sun and ring gears. The planet gears are spacially arranged around the sun gear, and at least some of the plurality of planet gears, 14U and 14L, are

Art Unit: 3681

meshed with the sun gear 12. The planet gears 14U and 14L meshing with the sun gear 12 have peripheries that are interleaved (figure 4; column 10, lines 59-61).

(claim 1)

An input shaft 130 is connected to the sun gear 12 for rotating the sun gear (figure 1; column 5, lines 25-28; column 10, line 26) and the ring gear 20 is fixed (column 10, lines 31-33). (claims 2 and 15)

The plurality of planet gears are mounted on a plurality of planet gear shafts 18 with at least two planet gears of the plurality of planet gears (14U and 16 or 14L and 16) being mounted on each planet gear shaft (column 10, lines 30-31).

(claim 3)

The gears 14U and 14L, the planet gears meshing with the sun gear 12, are the largest planet gears on the planet gear shafts 18 (figure 3).

(claims 4 and 17)

At least one of the planet gears 16 on each planet gear shaft 18 meshes with the ring gear 20.

(claim 5)

A first planet gear 14U or 14L of the at least two planet gears on each planet gear shaft meshes with only the sun gear 12, and a second planet gear 16 of the at least two planet gears on each planet gear shaft meshes with only the ring gear 20.

(claim 8)

The first planet gear 14U or 14L is larger than the second planet gear 16.

(claim 9)

Art Unit: 3681

The epicyclic gear transmission 10 is a rotor transmission of a rotary wing aircraft (column 4, lines 29-32; column 10, lines 38-41).
(claims 13 and 21)

The plurality of planet gears 14U and 14L are spacially arranged around and meshing with the sun gear 12 with adjacent planet gears meshing with the sun gear 12 being axially staggered (figure 6; column 10, lines 49-61).
(claim 14)

The plurality of planet gears 14U and 14L are mounted on a plurality of planet gear shafts 18, the planet gear shafts 18 having center axes that are paralell with the sun and ring gear axis. The axially staggered adjacent planet gears meshing with the sun gear 12 are mounted on adjacent planet gear shafts 18-1 and 18-2 (column 11, lines 16-20).
(claim 16)

Allowable Subject Matter

4. Claims 7, 11, 12, and 19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 3681

U. S. Patent 3,144,790 (Davis, Jr., et al.) August 1964 - discloses an epicyclic gear transmission with two relatively large, axially spaced, interleaved planet gears meshing with a sun gear (two sun gears "flexibly mounted" to the same shaft) and a smaller planet pinion on a shared planet pinion shaft meshing with a fixed ring gear.


U. S. Patent 5,716,300 (Sammataro et al.) February 1998 - discloses an epicyclic gear rotor transmission of a rotary wing aircraft with staggered, biplanar primary pinions meshing with an input sun gear and smaller secondary pinions meshing with a fixed ring gear.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherry L Estremsky whose telephone number is (703) 308-2164. The examiner can normally be reached on Tuesday and Friday from 7:30 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on (703) 308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SLE


SHERRY ESTREMSKY
PRIMARY EXAMINER
403681 2-2-05